Subject: correlation coefficient and confidence level
Posted by gunvicsin11 on Mon, 10 Feb 2014 01:04:56 GMT
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Hello everyone,
        Is it possible to find confidence level for the correlation coefficient. Please let me know if you have any idea.
thanking you in advance
sid

Subject: Re: correlation coefficient and confidence level
Posted by David Fanning on Mon, 10 Feb 2014 01:08:17 GMT
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sid writes:

>   Is it possible to find confidence level for the correlation coefficient. Please let me know if you have any idea.

I have an idea. What have you tried that didn't work?

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thue. ("Perhaps thou speakest truth.")

Subject: Re: correlation coefficient and confidence level
Posted by gunvicsin11 on Mon, 10 Feb 2014 01:44:23 GMT
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Hello sir,
      I tried idl routines correlate and coyote's cgscatter2d, but both doesnt give, confidence level for the correlation coefficient.
Then I tried r_correlate, which gives significance level, but I guess significance level is different from confidence level.
So I have no idea how to do this.
thanking you
sid

On Monday, February 10, 2014 6:38:17 AM UTC+5:30, David Fanning wrote:
> sid writes:
>
>
>
>>   Is it possible to find confidence level for the correlation coefficient. Please let me
know if you have any idea.
>
>
>
> I have an idea. What have you tried that didn't work?
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> Cheers,
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> David
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> --
>
> David Fanning, Ph.D.
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> Fanning Software Consulting, Inc.
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>
> Sepore ma de ni thue. ("Perhaps thou speakest truth.")

Subject: Re: correlation coefficient and confidence level
Posted by David Fanning on Mon, 10 Feb 2014 02:35:57 GMT
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sid writes:

>   I tried idl routines correlate and coyote's cgscatter2d, but both doesnt give, confidence
level for the correlation coefficient.
> Then I tried r_correlate, which gives significance level, but I guess significance level is different
from confidence level.

> So I have no idea how to do this.

The first article that appears when I use Google to search "confidence correlation coefficient" is this article:

  http://www2.sas.com/proceedings/sugi31/170-31.pdf

Low and behold, there is code in there that calculates the confidence level of the correlation coefficient! Lucky! But, you know, sometimes it happens. :-)

Simply translating the SAS code to IDL (I'm pretty sure you could have done this, if I managed it), I get this:

```
n = 101
data_1 = cgDemoData(1)+ RandomU(-3L, n) * 10
data_2 = cgDemoData(1)+ RandomU(-5L, n) * 10
cgScatter2D, data_1, data_2

rho = Correlate(data_1, data_2)
fisherTransform = 0.5*(alog(1+rho) - alog(1-rho))
sigmaz = 1.0 / Sqrt(n-3)
l_95 = fisherTransform - (1.96 * sigmaz)
h_95 = fisherTransform + (1.96 * sigmaz)

lo95 = (exp(2*l_95)-1)/(exp(2*l_95)+1)
hi95 = (exp(2*h_95)-1)/(exp(2*h_95)+1)
Print, 'Low 95% Confidence Level:  ', lo95
Print, 'High 95% Confidence Level: ', hi95
END
```

For a sanity check, I used another page from my Google search to find a confidence level calculator. I plugged my numbers in and they matched more or less:

  http://vassarstats.net/rho.html?

I spent about 45 minutes on this, if you feel like you want to make a contribution to the work.

Cheers,

David
--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thue. ("Perhaps thou speakest truth.")

Subject: Re: correlation coefficient and confidence level
Posted by gunvicsin11 on Mon, 10 Feb 2014 06:09:55 GMT

On Monday, February 10, 2014 8:05:57 AM UTC+5:30, David Fanning wrote:
> sid writes:
>
>
>
>>   I tried idl routines correlate and coyote's cgscatter2d, but both doesnt give, confidence level for the correlation coefficient.
>
>> Then I tried r_correlate, which gives significance level, but I guess significance level is different from confidence level.
>
>> So I have no idea how to do this.
>
>
>
> The first article that appears when I use Google to search "confidence
>
> correlation coefficient" is this article:
>
>
>
>   http://www2.sas.com/proceedings/sugi31/170-31.pdf
>
>
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> Low and behold, there is code in there that calculates the confidence
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> level of the correlation coefficient! Lucky! But, you know, sometimes it
>
> happens. :-)
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>
>
> Simply translating the SAS code to IDL (I'm pretty sure you could have
>
> done this, if I managed it), I get this:
>
>
>
> n = 101
>
> data_1 = cgDemoData(1)+ RandomU(-3L, n) * 10
>
> data_2 = cgDemoData(1)+ RandomU(-5L, n) * 10
>

```
> cgScatter2D, data_1, data_2
>
>
>
> rho = Correlate(data_1, data_2)
>
> fisherTransform = 0.5*(alog(1+rho) - alog(1-rho))
>
> sigmaz = 1.0 / Sqrt(n-3)
>
> l_95 = fisherTransform - (1.96 * sigmaz)
>
> h_95 = fisherTransform + (1.96 * sigmaz)
>
>
>
> lo95 = (exp(2*l_95)-1)/(exp(2*l_95)+1)
>
> hi95 = (exp(2*h_95)-1)/(exp(2*h_95)+1)
>
> Print, 'Low 95% Confidence Level:  ', lo95
>
> Print, 'High 95% Confidence Level: ', hi95
>
> END
>
>
>
> For a sanity check, I used another page from my Google search to find a
>
> confidence level calculator. I plugged my numbers in and they matched
>
> more or less:
>
>
>
>
>
>
>
> I spent about 45 minutes on this, if you feel like you want to make a
>
> contribution to the work.
>
>
>
> Cheers,
>
```

\>
\>
\> David
\>
\> --
\>
\> David Fanning, Ph.D.
\>
\> Fanning Software Consulting, Inc.
\>
\> Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
\>
\> Sepore ma de ni thue. ("Perhaps thou speakest truth.")

Respected sir,
        I have tried the website "http://vassarstats.net/rho.html?" and the one above also. But what I want to do is to get the confidence level of how well the two data sets are correlating. How much % confidence level the correlation coefficient indicates.
thanking you
sid

Subject: Re: correlation coefficient and confidence level
Posted by Georgiana Ogrean on Mon, 10 Feb 2014 09:17:57 GMT
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So is it the p-value that you want to calculate?

On Monday, February 10, 2014 7:09:55 AM UTC+1, gunvi...@gmail.com wrote:

\> I have tried the website "http://vassarstats.net/rho.html?" and the one above also. But what I want to do is to get the confidence level of how well the two data sets are correlating.
\> How much % confidence level the correlation coefficient indicates.
\>

Subject: Re: correlation coefficient and confidence level
Posted by Fabzi on Mon, 10 Feb 2014 13:07:17 GMT
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This topic comes over and over again. I believe this statistic basics
should be native in IDL, as it is in Matlab and R
(http://www.mathworks.de/de/help/matlab/ref/corrcoef.html)

Anyways, you can check the routine that Ken posted a couple of months ago:

https://groups.google.com/d/msg/comp.lang.idl-pvwave/qI3TQuO MM-Y/9rcpU2Jeo78J

Cheers,

Fabien